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APPENDIX.

[It has been thought proper to add the following paper as an appendix to Mr. Jennings's paper, p. 240, as containing the latest modification of his instrument for exhibiting lights on steam-vessels.]

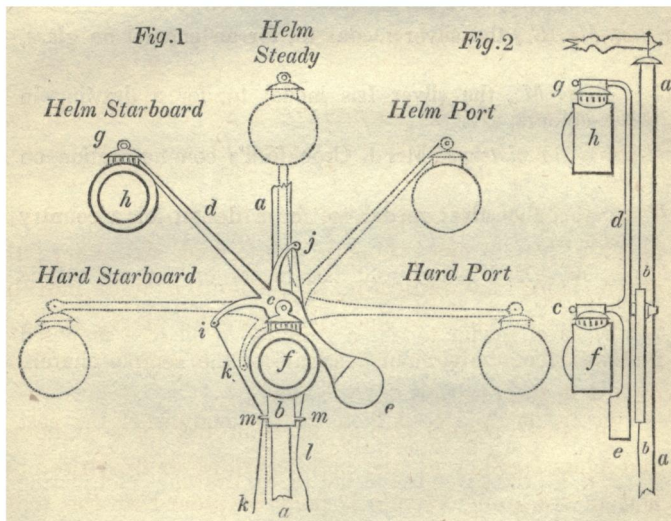
Description of Mr. JENNINGS's Indicator Lamps for preventing the Collision of Steam-Vessels with others.

THIS form of the apparatus is quite simple, consisting of only two lamps. One is white and stationary; the other, being the indicator, is a coloured light movable about the former. It may, therefore, be placed so as to indicate the course which the vessel is steering without regard to the position of the mast.

In small vessels it may be mounted on a standard, and placed either on the paddle-bridge or near the bow. But in sea-going vessels it may be placed at the mast-head, or on the topmast, by any suitable attachment; or it may be so constructed as to be hoisted by ropes to the topmast like a flag.

Fig. 1 is a front view, and fig. 2 a side view, of the apparatus as attached to the topmast, of which *aa* is a part: against it is fitted the piece *bb*, from which projects the central pin *c*; on this pin is first placed the arm

de, and then the central lamp *f*, so as to swing freely; the top of the arm *d* is also bent out horizontally at *g*, in order to hold the coloured indicator lamp *h*, and let it swing freely. The end *e* is made heavy enough to bring the lamp *h* perpendicular over the centre light, whenever it is left at liberty so to do. Therefore, to indicate a right or left course, the arm *d* must be pulled aside; for this purpose two smaller arms, *i* and *j*, project from the arm *d*, having lines *k* and *l* fastened to them, fig. 1; these pass through the guide-rings *m m*, and descend to the deck or to the captain's station.



In fig. 2, the arm *d* is at liberty; it therefore stands perpendicular: but in fig. 1 it is pulled aside by the line *k* to the position that indicates helm starboard. The captain, by working the lines *k* and *l*, informs the vessels ahead what course he is steering, and also indicates to the steersman how he is to put the helm, without the

necessity of speaking to him, the back of the lanterns being perforated with small holes through which light enough passes to enable the helmsman to see their position.